



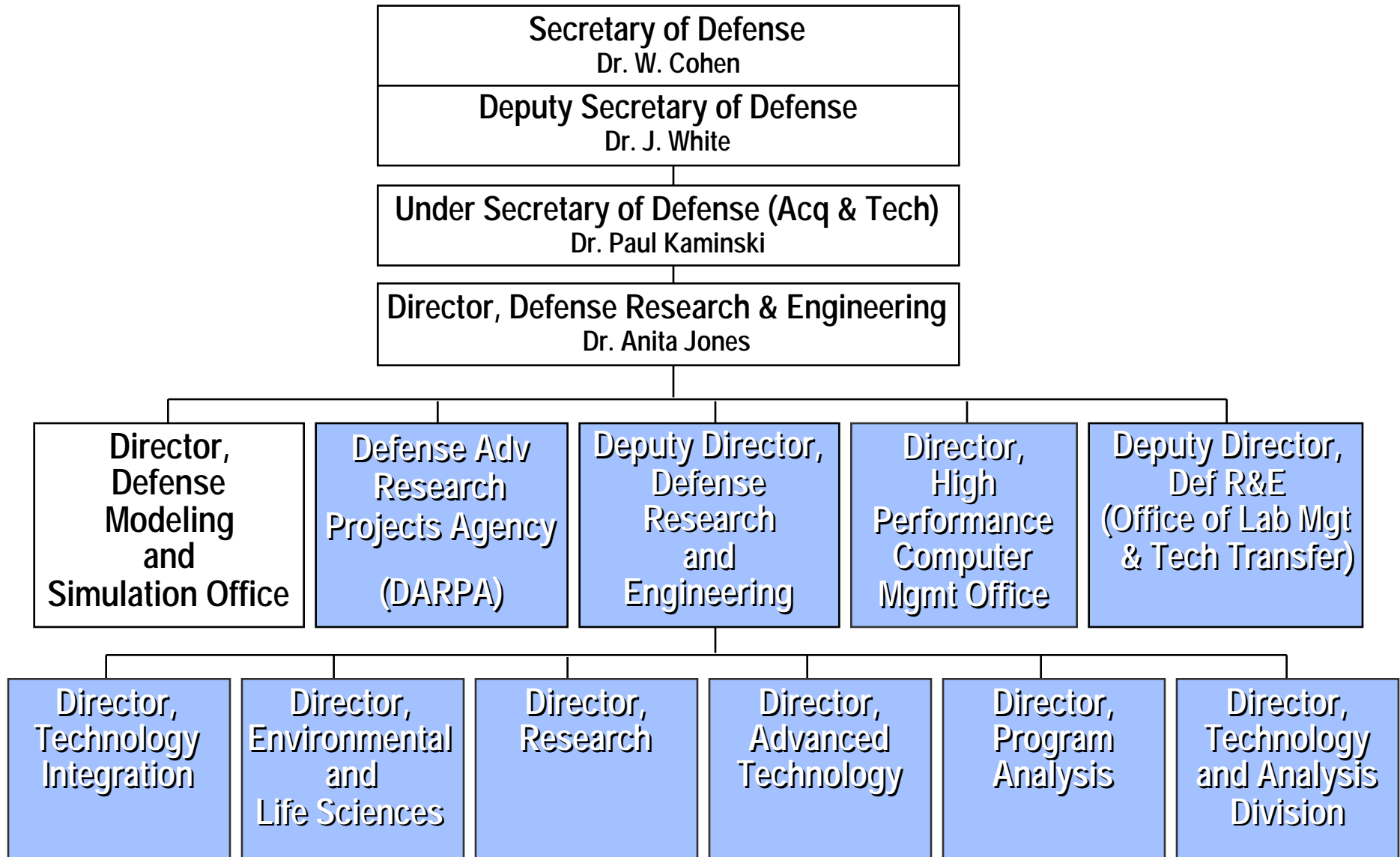
# **Defense Modeling and Simulation Office**

## **- Facilitating M&S Interoperability and Reuse -**

**Captain Jim Hollenbach, USN**  
**Director, Defense Modeling and Simulation Office**  
**(703) 998-0660** **fax (703) 998-0667**  
**[jwh@dmsso.mil](mailto:jwh@dmsso.mil)**



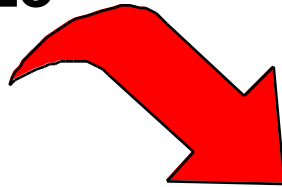
# OSD S&T Organization



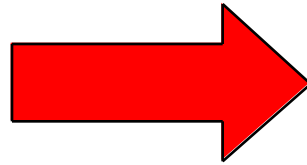


# M&S is Critical to DoD's Ability to Meet its Mission

**Continuing squeeze  
on DoD resources**



**More demanding  
operational  
requirements**



**Much more technical  
capability at less cost**



**Advanced  
M&S  
offers a cost-effective  
and affordable  
solution**



# What's the Current State of M&S?

- **Bad**

- most are stove-pipes; little interoperability or reuse across programs
- too expensive to maintain and operate (time, \$, people)
- generally not verified, validated and accredited

- **Good**

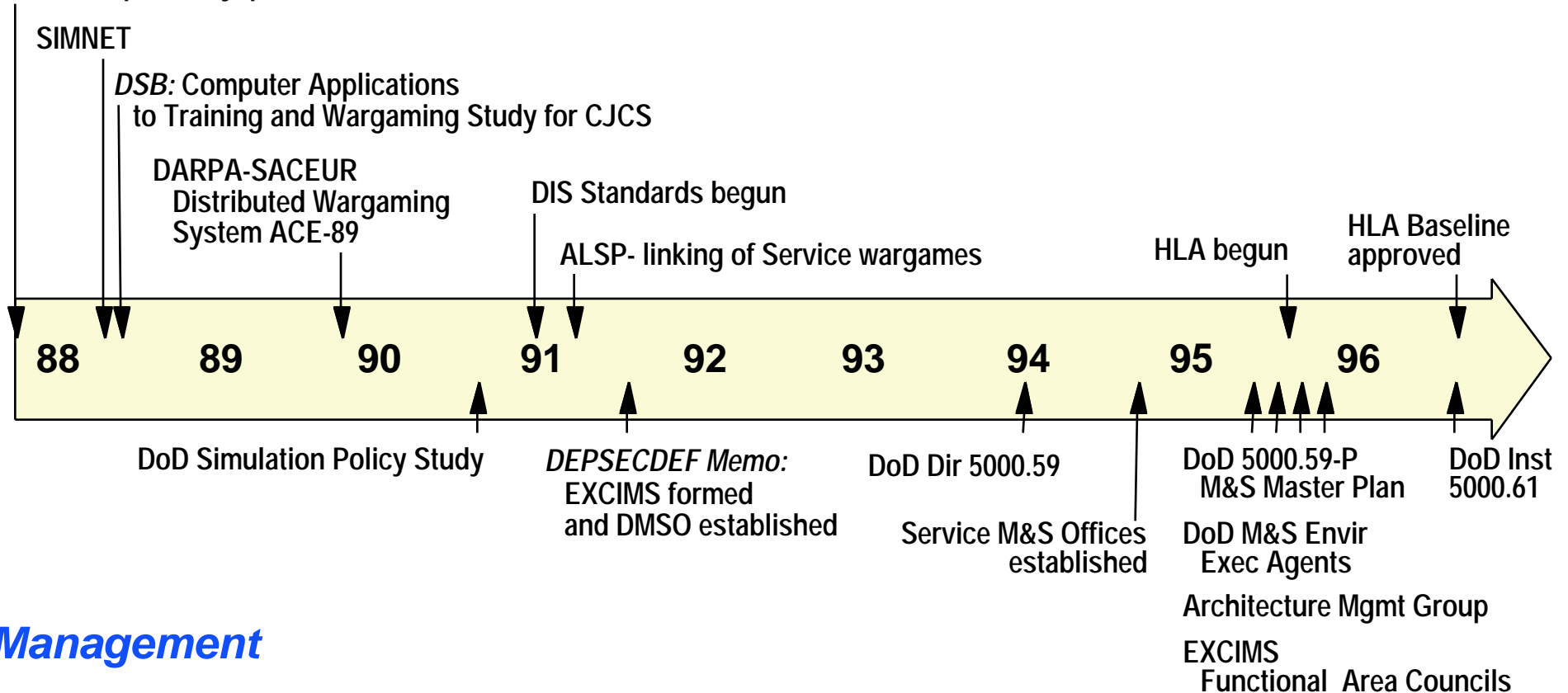
- simulations are used extensively, yielding important benefits
- ALSP allows limited interoperability among Service wargames
- DIS standards allow limited interoperability among real-time, man-in-the-loop simulations
- much improved teamwork across M&S community
- DoD has a consensus vision for a robust M&S capability comprised of modular, interoperable, and reusable components
- we have begun a new family of coordinated M&S developments



# How Did We Get Here?

## Technical

Limited scope simulations,  
little interoperability prior to 1988



## Management

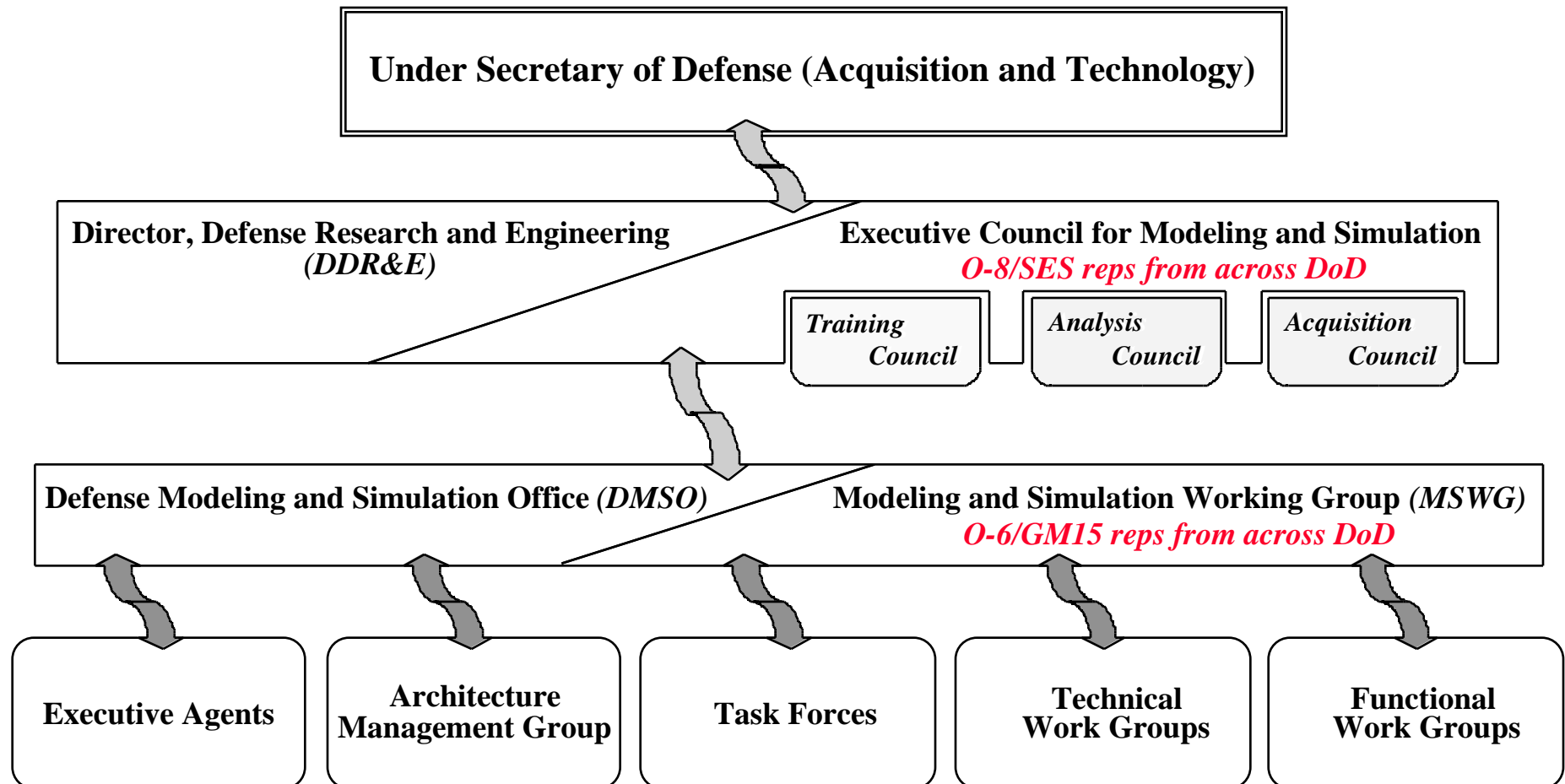
No formal management structure

Management structure stand-up

Management structure in place



# DoD M&S Management Structure





# DoD M&S Vision

**Defense modeling and simulation will provide readily available, operationally valid environments for use by DoD components**

- *to train jointly, develop doctrine and tactics, formulate operational plans, and assess war fighting situations***
- *as well as to support technology assessment, system upgrade, prototype and full scale development, and force structuring.***

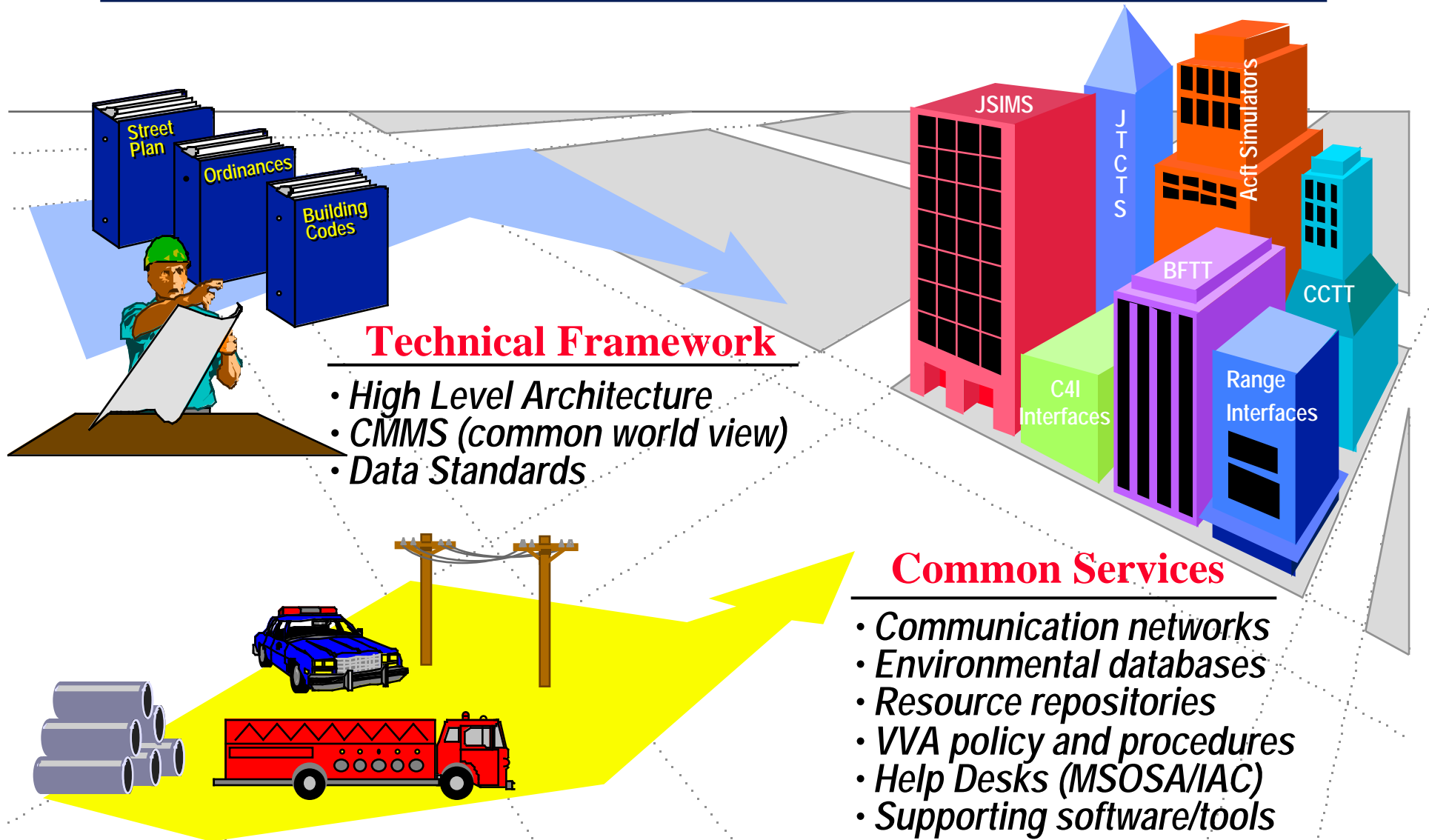
**Furthermore, common use of these environments will promote a closer interaction between the operations and acquisition communities in carrying out their respective responsibilities.**

**To allow maximum utility and flexibility, these modeling and simulation environments will be constructed from affordable, reusable components interoperating through an open systems architecture.**

***DoD Executive Council on Modeling and Simulation (EXCIMS),  
March 13, 1992***



# DoD M&S Strategy: An Analogy to City Planning



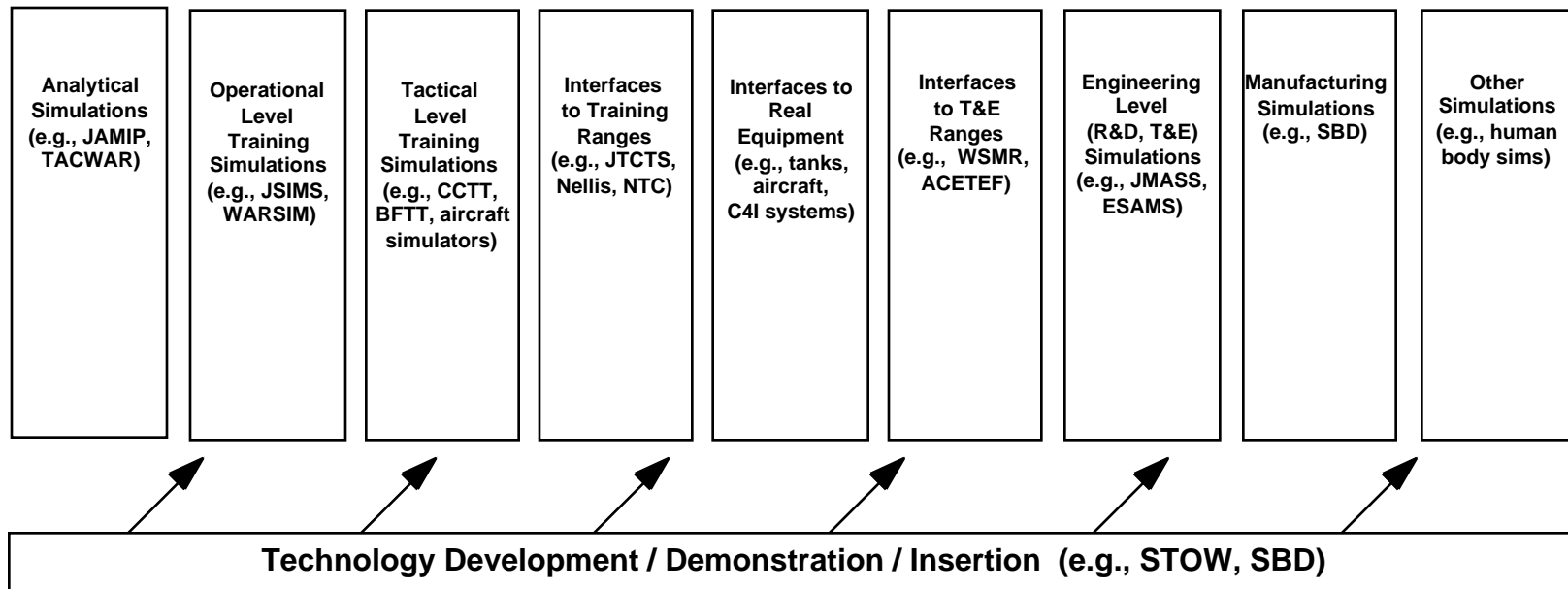




# Diverse Applications Under a Common Technical Framework

**DoD M&S Master Plan Technical Framework**  
(High Level Architecture, Conceptual Models Of the Mission Space, Data Standards)

## Domain-specific aspects





# DoD M&S Master Plan

## Objective 1

Develop a common technical framework for M&S

### Sub-objectives

1-1  
High-level architecture

1-2  
Conceptual models of the mission space

1-3  
Data standardization

## Objective 2

Provide timely and authoritative representations of the natural environment

### Sub-objectives

2-1  
Terrain

2-2  
Oceans

2-3  
Atmosphere

2-4  
Space

## Objective 3

Provide authoritative representations of systems

## Objective 4

Provide authoritative representations of human behavior

### Sub-objectives

4-1  
Individuals

4-2  
Groups and organizations

## Objective 5

Establish a M&S infrastructure to meet developer and end-user needs

### Sub-objectives

5-1  
Field systems

5-2  
VV&A

5-3  
Repositories

5-4  
Communications

5-5  
Coordination Center

## Objective 6

Share the benefits of M&S

### Sub-objectives

6-1  
Quantify impact

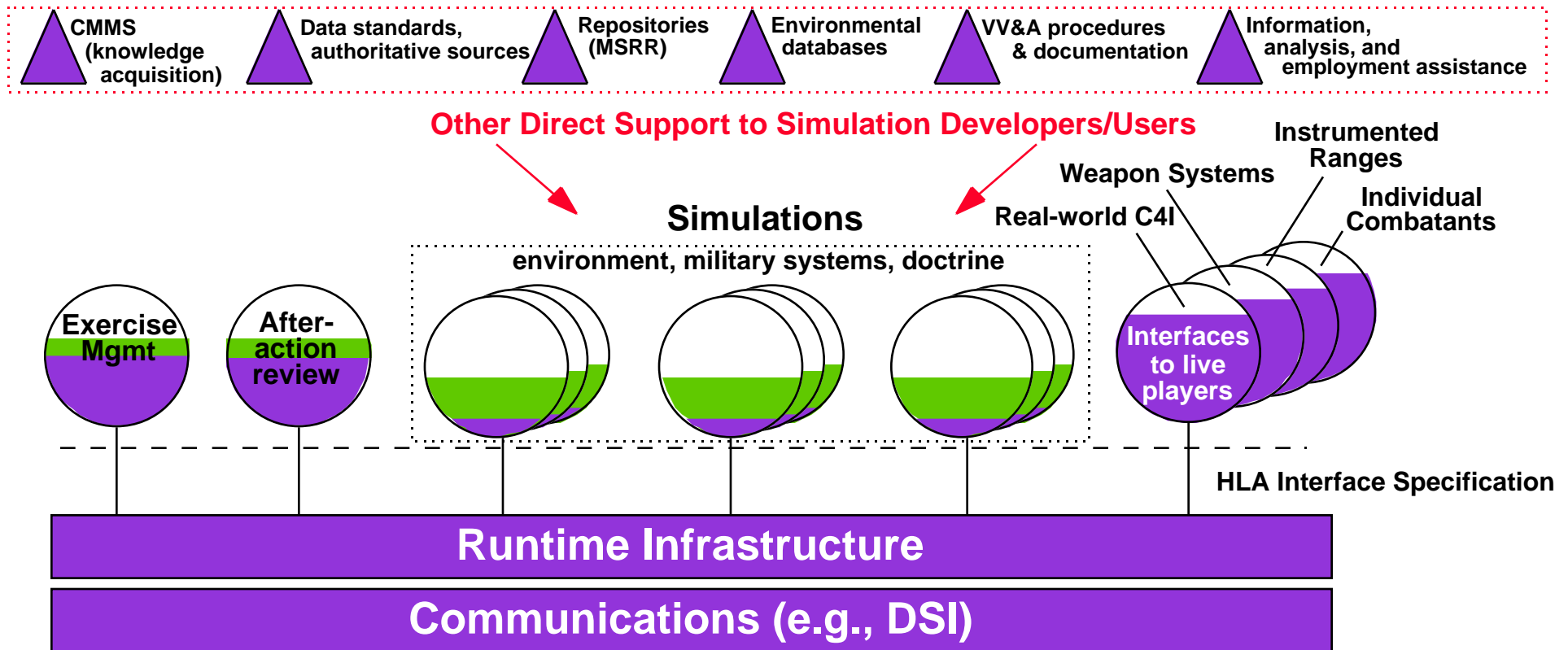
6-2  
Education

6-3  
Dual-use

***signed out by USD (A&T) on 17 October 1995***



# Fostering Cost Effectiveness through Reuse and Direct Support



**Key:**

- reusable across all DoD simulation systems
- reusable across a simulation domain
- system-specific



# Summary

- **There is no viable alternative to robust use of M&S in our future**
- **Charted course is strategically and technically sound**
- **Development involves joint, service and industry M&S communities resulting in operationally viable tools**
- **Information transfer**
  - **Distributed to community through briefings, workshops, meetings, web, newsletters, Modeling and Simulation Resource Repository (MSRR), Modeling and Simulation Operational Support Activity (MSOSA)/ Defense Modeling, Simulation, and Tactical Technology Information Analysis Center**
  - **Web address for DMSO Homepage is [www.dmsso.mil](http://www.dmsso.mil)**
  - **Phone (703) 998-0660 Fax (703) 998-0667**
- **Learn, Leverage, Communicate, Participate!**